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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,300	01/25/2007	Dieter Lehmann	P29885	5157

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EXAMINER	
PAUL, JESSICA MARIE	
ART UNIT	**PAPER NUMBER**
1796	

NOTIFICATION DATE	DELIVERY MODE
05/07/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/577,300	LEHMANN, DIETER	
	Examiner	Art Unit	
	Jessica Paul	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/25/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 6 recites the limitation "wherein the following coupling reactions are" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Lehmann (WO99/61527). The examiner is using US Patent No. 6770378 as a translation of this document.

Regarding claims 1-5; Lehmann discloses compounds of polyamide and perfluoralkyl substances (surface modified fluoropolymer) and mixtures of these

compounds with additional polymer substances [col4, line10-19], such as polyolefins, polyvinyl components, polyesters and the like (olefinic polymeric substance) [col5, line10-22]. Lehmann discloses that preferably, the perfluoralkyl substances that have been radiation-decomposed by irradiation and modified as such, for example, PTFE fine powder that was produced with an irradiation dose of greater than 50 kGy, preferably greater than 100 kGy. By means of the presence of reactants, preferably under the influence of oxygen, perfluoralkyl substances are attained that were modified during the radiation decomposition which are preferably present in a modified form with perfluoralkyl carboxylic acid and perfluoralkyl carboxylic acid fluoride groups [col4, line38-48].

Regarding claims 7; Lehmann teaches the compounds of polyamide and perfluoralkyl substances and mixtures of these compounds with additional polymers (polyolefins and the like) are achieved by means of a reactive melt modification reaction in which the perfluoralkyl is to a large extent chemically bonded (reads on applicants required polymerization) to the polyamide component [col4, line10-20].

Regarding claims 8-11; Lehmann discloses examples of polyamides such as co-polyamides, polyester amides, polyether amides, polyamide amides, to name a few [col5, line9-13]. Wherein the use of polyamide amide (reactive functional groups), an amide bond forms with the perfluoralkyl carboxylic acid or perfluoralkyl carboxylic acid fluoride groups on the PTFE.

Regarding claim 12; Lehmann teaches the use of polyolefin [col5, line11], which couples to the PTFE, and polyamide compounds (further containing

reactive functional groups) [col5, line1-5] which forms an amide bond to the perfluoralkyl carboxylic acid and perfluoralkyl carboxylic acid fluoride groups [col4, line46-48].

Claims 13-17, 19, 20, 21, 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lehmann (WO99/61527). The examiner is using US Patent No. 6770378 as a translation of this document.

Regarding claims 13-17, 20, 21, and 24-26; Lehmann discloses in a laboratory kneader, 40g of polycaprolactam (polyamide) are plasticized at 250ºC and 15g of a PTFE fine powder that was radiation-modified at 1000 kGy were added [col6, line1-14, ex1]. Lehmann discloses radiation modification is preferably done in the presence of oxygen [col4, line38-48]. Additional olefinic polymers may be added to this reaction [col5, line9-12]. Wherein radiation modified PTFE reacts with the polyolefin, and the polycaprolactam forms an amide bond to the to the perfluoralkyl carboxylic acid and perfluoralkyl carboxylic acid fluoride groups.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13-18 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coates et al. (US Serial No. 20030199639).

Regarding claims 13, 14 and 20; Coates et al. teaches fluoropolymer particles are subjected to high energy treatment so as to change the chemical functionality of the particle surfaces [abs]. The invention provides a method of treating fluoropolymer particles which includes, attaching macromolecules to fluoropolymer particles using high source energy, such as atmospheric plasma and electron beam radiation [0016]. PTFE is commonly used as the fluoropolymer [0032,exs], and preferable macromolecules include polyvinyl alcohol, polyacrylamides, polyvinylamines, polyethylene glycol, polyacrylic acid, and copolymers or mixtures thereof (olefinic polymeric substances) [0043].

The courts have upheld that the process steps taken concurrently are the equivalent of the steps taken successively, therefore it would have been obvious to one having ordinary skill in the art, at the time of the invention, to surface modify the fluoropolymer after the addition of the macromolecules instead of surface modifying the fluoropolymer prior to the addition of the macromolecules. See *Asbestos Shingle, Slate & Sheathing Co*. et al. vs. Rock Fiber Mfg. Co., 217 F. 66.

Regarding claims 15-17; Coates et al. discloses PTFE in both granular (powder) and aqueous dispersion form was mixed with water to form a wet system, and the mixture was irradiated in the presence of oxygen. Also, surfactants, macromolecules, and hydrogen peroxide were added to the mixture prior to irradiation. The mixtures were electron beam irradiated at doses

between 100 and 1000 kGy (as calculated by examiner) [0107-0108, ex6]. The addition of oxygen with plasma treatment or UV radiation, causes the formation of radicals which react with the fluoropolymer causing the formation of -COOH and -COF groups on the surface of the polymer.

Regarding claim 18; Coates et al. discloses that the low pressure or atmospheric plasma treatment processes have been developed do not require a vacuum system and provides treatment of various substrates at low temperature while operating at atmospheric pressure (reads on applicant's required tempering at low temperatures) [0014].

Regarding claims 21-23; Coates et al. teaches the use of polyethylene glycol (dual hydroxyl functionality and capable of chemical reactions) can be used as macromolecules of this invention [0043]. However, Coates et al. fails to teach a reaction temperature of greater than 150ºC. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. See *In re Aller*, 105 USPQ 233. At the time of the invention a person having ordinary skill in the art would have found it obvious to optimize the reaction temperature of the method for producing a modified perfluoroplastic and would have been motivated to do so in order to achieve optimal crosslinking.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over over Coates et al. (US Serial No. 20030199639) as applied to claim 13 above, and further in view of Lehmann (WO99/61527).

Coates et al. discloses the basic claimed method for forming a modified perfluoroplastic as adequately set forth above with respect to claim 13. Coates et al. fails to disclose tempering with humid air. Lehmann teaches if the irradiation occurs in air (including "humid air"), subsequent hydrolysis of the –COF groups occurs, and carboxyl groups will result (reads on applicant's required subsequent tempering with humid air) [col2, line6-9]. Lehmann and Coates et al. are combinable because they are both concerned with the same field of endeavor, namely surface modified fluoropolymers. At the time of the invention, a person having ordinary skill in the art would have found it obvious to temper the fluoropolymer in the method for producing a fluoroplastic as taught by Coates et al., with humid air as disclosed by Lehmann, with motives to produce a surface modified fluoropolymer having carboxyl groups [as taught by Lehmann, col2, line6-9].

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Paul whose telephone number is (571)270-5453. The examiner can normally be reached on Monday thru Friday 8:00- 6:00p; alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/JMP/

Examiner
Art Unit 1796